REMARKS

This Amendment, Response, and Request for Continued Examination Pursuant to 37 C.F.R. §1.114 is being submitted in response to the Decision on Appeal dated November 27, 2009, the Advisory Action dated October 17, 2007, and the Final Office Action dated May 2, 2007. Claims 1-19 are pending in the Application.

1) Claims 10-17 are rejected under 35 U.S.C. §102(b) as being anticipated by Levy et al. (U.S. Pat. No. 4,335,214, hereinafter Levy).
2) Claims 1-9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Helms et al. (U.S. Pat. No. 6,236,315, hereinafter Helms) in view of Levy.
3) Claim 19 is rejected under 35 U.S.C. §103(a) as being unpatentable over Levy.
4) Claim 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all limitations of the base claim and any intervening claim.

In response to these rejections, Claims 1, 4, 8, 10-11, 14-15, and 18 have been amended and Claim 20 has been newly added to further clarify the subject matter which Applicants regard as the invention, without prejudice or disclaimer to continued examination on the merits. These amendments are fully supported in the Specification, Drawings, and Claims of the Application and no new matter has been added. Based upon the amendments and the arguments presented herein, reconsideration of the Application is respectfully requested.

Claims 10-17 - §102(b) Rejection - Levy

Claims 10-17 are rejected under 35 U.S.C. §102(b) as being anticipated by Levy. Levy is particularly concerned with eliminating spurious signals at the receiver produced by leakage of signal between the output of the transmitter and the input of the receiver of the same terminal equipment (Col. 1, lines 9-14). Levy provides an adaptive echo canceller for full-duplex synchronous data transmission on a modulated carrier between terminals

each comprising a transmitter and a receiver (Col. 3, lines 16-19). As noted by Examiner, Levy is utilizing a band-pass filter (reference numeral 45 in FIG. 3). Note, Levy utilizes the band-pass filter for the feedback signal in all embodiments (e.g. FIGS. 3-5).

Applicants, on the other hand, utilize a feedback loop that achieves echo cancellation of the RF carrier in the transceiver by isolating the noise (error) component of the demodulated incoming signal using low-pass filters 160I and 160Q (Applicants' Specification, paragraph [0020]). Note, in Applicants exemplary embodiments of FIGS. 2-6, Applicants' feedback signal is low pass filtered, not band pass filtered as disclosed in Levy. Levy selects out the data portion by filtering out the carrier portion and Levy operates on this data portion (with the digital time-domain complex transversal filter 31). On the other hand, Applicants filter out the data and select out the carrier portion and operate on the carrier portion.

Independent Claims 10 and 14 have been amended to recite:

> 10. A method, comprising the steps of:
> demodulating a reflection signal into an in-phase signal and a quadrature signal;
> **low pass** filtering the in-phase signal to isolate an in-phase error signal;
> **low pass** filtering the quadrature signal to isolate a quadrature error signal;
> modulating the in-phase error signal and the quadrature error signal to create a feedback signal; and
> combining the reflection signal and the feedback signal to cancel at least a portion of radio frequency echo signals in the reflection signal.
>
> 14. A system, comprising:
> a demodulator to demodulate a reflection signal into an in-phase signal and a quadrature signal;
> a first **low pass** filter to isolate an in-phase error signal from the in-phase signal;
> a second **low pass** filter to isolate a quadrature error signal from the quadrature signal;
> a modulator to modulate the in-phase error signal and the quadrature error signal to create a feedback signal; and

> a combiner element to combine the reflection signal and the feedback signal to cancel at least a portion of radio frequency echo signals in the reflection signal.

With respect to the filtering steps and filters in Claims 10 and 14, Examiner is relying on the digital time-domain complex transversal filter 31 of Levy to read on each of these elements/steps. Applicants respectfully disagree. Levy is disclosing a complex transversal filter 31 whereas Applicants are utilizing a low pass filter to isolate a base band error signal at a lower frequency than a signal of interest (this limitation now included in dependent Claims 11 and 15). Further, since Levy includes a band pass filter prior to the complex transversal filter 31, it is not possible for Levy to read on Applicants' low pass filter to isolate the error signal. The complex transversal filter 31 is not configured to isolate an in-phase/quadrature error signal. Rather, the digital time-domain complex transversal filter 31 receives at its input the stream of multivalent complex symbols from select circuit 23 and generates at its output at a rate $1/\Delta$ samples of a complex signa1, i.e. the complex transversal filter 31 is not a low pass filter isolating a base band error signal at a lower frequency than a signal of interest.

Applicants utilize these low-pass filters to isolate the undesirable echo signal since the majority of the base band error signal is of a lower frequency than the signal of interest (Applicants' Specification, paragraph [0021]). Applicants' invention relates to radio frequency identification (RFID) applications whereas Levy relates to modems. Noise in RFID applications is typically at a lower frequency that the signal of interest whereas noise in modems is at the signal of interest. Applicants respectfully submit that Levy fails to disclose low pass filters to isolate in-phase/quadrature error signals as claimed by Applicants.

Additionally, Applicants respectfully submit the low pass filtering limitations added herein disqualify Levy as prior art from the present invention. Since Applicants use a low pass filter on the reflection signal and Levy uses a band pass filter on the transmission channel 43 (Examiner is reading Levy's transmission channel 43 on Applicants' reflection signal),

Applicants and Levy utilize different portions of the frequency spectrum in the feedback signal. Applicants specifically filter out the band pass where Levy operates and Levy filters out specifically where Applicants operate, i.e. Levy strips off the carrier and operates on the data while Applicants strip off the data and operate on the carrier. Thus it is not possible to use Levy as a prior art reference in combination with any other reference. If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); M.P.E.P. §2143.01. If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959); M.P.E.P. §2143.01.

Accordingly, Applicants respectfully submit the rejection of Claims 10-18 as being anticipated by Levy has been traversed, and Applicants respectfully request withdrawal.

Claims 1-9 - §103(a) Rejection – Helms, Levy

Claims 1-9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Helms et al. (U.S. Pat. No. 6,236,315, hereinafter Helms) in view of Levy. The arguments presented herein with respect to Levy apply here with equal force, i.e. namely that Levy band pass filters the feedback signal whereas Applicants low pass filter the feedback signal.

Independent Claim 1 has been amended to recite:

> 1. A system, comprising:
>
> a transmitter element creating an interrogation signal and transmitting the interrogation signal; and
>
> a receiver element receiving **and demodulating** a reflection signal of the interrogation signal and combining the reflection signal and a feedback signal to cancel at least a portion of radio frequency echo signals in the reflection signal**, wherein the feedback signal comprises the at least a portion of radio frequency echo signals at lower frequencies than a data signal of interest**.

As described herein, Applicants are canceling noise at a base band frequency lower than the signal of interest. Levy is canceling noise in the data itself. Thus, Levy fails to teach or fairly suggest "wherein the feedback signal comprises the at least a portion of radio frequency echo signals at lower frequencies than a signal of interest."

Dependent Claim 4 has been amended to recite "wherein the error component of the reflection signal is isolated by low pass filtering the reflection signal." The arguments presented herein with respect to Levy apply here with equal force as Levy utilizes a band pass, not a low pass.

Independent Claim 8 has been amended to recite:

> 8. A method, comprising the steps of:
> receiving **and demodulating** a reflection signal;
> deriving a feedback signal from the reflection signal by isolating an error component of the reflection signal **through a low pass filter**; and
> combining the reflection signal and the feedback signal to cancel at least a portion of radio frequency echo signals in the reflection signal.

The arguments presented herein with respect to Levy apply here to Claim 8 and the low pass filter. Accordingly, Applicants respectfully submit the rejection of Claims 1-9 as being unpatentable over Helms in view of Levy has been traversed, and Applicants respectfully request withdrawal.

Claims 19 - §103(a) Rejection – Levy

Claim 19 is rejected under 35 U.S.C. §103(a) as being unpatentable over Levy. Claim 19 depends from Claim 14 thus the amendments and arguments presented herein with respect to Claim 14 apply here with equal force. Applicants respectfully request withdrawal of this rejection.

Claims 18 - Objection

Claim 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all limitations of the base claim and

any intervening claim. Applicants have amended Claim 18 as a new independent Claim and included all limitations of Claim 14. Applicants are including the requisite fees for an additional independent Claim. As all limitations of the base claim and any intervening claim are now included in Claim 18, Applicants respectfully request withdrawal of this objection.

New Claim 20

Applicants are added new Claim 20 depending from Claim 1 that recites an additional element of "a single antenna connected to the transmitter element and the receiver element." Here, the present invention utilizes the same antenna for the transmitter and receiver components.

CONCLUSION

Applicants would like to thank Examiner for the attention and consideration accorded the present Application. Should Examiner determine that any further action is necessary to place the Application in condition for allowance, Examiner is encouraged to contact undersigned Counsel at the telephone number, facsimile number, address, or email address provided below. It is not believed that any fees for additional claims, extensions of time, or the like are required beyond those that may otherwise be indicated in the documents accompanying this paper. However, if such additional fees are required, Examiner is encouraged to notify undersigned Counsel at Examiner's earliest convenience.

Respectfully submitted,

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